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Cover photograph –Barn Owl (*Tyto alba*) at Owl’s Hole Pit Cave courtesy of Elyse Vogeli

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SAN SALVADOR'S LIVING JEWELS: LOCAL CONSERVATION EFFORTS TO RAISE AWARENESS AND ESTABLISH A NATIONAL PARK

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ABSTRACT

The San Salvador's Living Jewels (SSLJ) is a local grass roots organization whose objective is to promote the conservation and sustainable use of San Salvador's natural resources for future generations through knowledge, education and action. A primary goal is to establish and support a national land and sea park in and around San Salvador through the Bahamas National Trust (BNT). San Salvador and the surrounding Cays are home to a remarkable number of unique, threatened and endangered wildlife, as well as the ecosystems they live in. In 2005, the SSLJ began as a handful of locals who recognized the value, decline, and need for sustainable management of San Salvador's natural resources. Like you, we care about these "living jewels" and their survival. Currently, the SSLJ is in the final stages of becoming a legal Bahamian non-profit company with assistance from The Nature Conservancy (TNC). The SSLJ logo (Figure 1) is comprised of images taken from San Salvador.

There are three crucial criteria needed to establish a national park: unique natural resources, sustainable funding and most importantly community support. San Salvador has many documented unique natural resources. SSLJ developed and implemented a pilot dive tag program endorsed by the BNT which proves to be a viable funding mechanism. Community support was generated through several innovative outreach programs including a catchy conservation song. The BNT submitted the San Salvador National Park Proposal to The Office of the Prime Minister in February 2007 and it was resubmitted in July 2007. Upon approval of this document, a new national park will be created.

INTRODUCTION

The SSLJ recognized that San Salvador and the surrounding cays are home to many unique animals and ecosystems. Some of these animals are threatened, endangered, declining and/or found no place else in the world. Alarming, some of these natural resources are declining. Tourism is San Salvador's main industry with visitors arriving from around the world. Fishing is also important on San Salvador. Both tourism and fishing are dependent on the same marine resource. The cultural importance of grouper, conch and lobster should also be recognized. Therefore, there is an urgent need for sustainable use to ensure that future generations can enjoy these natural resources.



Figure 1. The SSLJ Logo.

OUR MESSAGE

"We should think of our resources not as having been left to us by our parents, but as having been loaned to us by our children." Anonymous

The above motto, endorsed by the SSLJ, conveys the idea that future generations should have access to the same natural resources present today. Some of San Salvador's "living jewels" are depicted in the SSLJ logo (Figure 1), which is comprised of images taken on San Salvador. The following sections highlight information on iguanas, grouper, conch, sea turtles, lobster, woodpecker, reefs, seabirds and sustainable management. Each section includes the applicable verse from the song, "The Living Jewels of the Land, the Sky and Sea" splendidly written by Ron Shaklee. Ron Shaklee is a geography professor at Youngstown State University who has been annually leading field courses to San Salvador for the past 20 years. A popular Bahamian musician and band, Ira Storr and the Spank Band, re-recorded the song with several San Salvador youth. This catchy conservation song has been released for radio play in The Bahamas and is available on CD from the BNT.

San Salvador Rock Iguanas

*My name is Lana, I'm an iguana,
with my skin so green.
Steal me away from where I should be, soon there
won't be any more of me.
One less jewel in the sunlit crown of the land,
the sky and sea.*



Figure 2. San Salvador Rock Iguana on Green Cay. Photo by S. Voegeli.

San Salvador's Rock Iguanas, *Cyclura rileyi rileyi*, are among the rarest lizards in the world (Figure 2). These lizards are found only on San Salvador and the surrounding cays. Fewer than 500 individuals remain. Bahamian and international laws make it illegal to capture, remove, or kill iguanas.

Nassau Grouper

*My name is Rupert, I'm a Nassau Grouper,
I'm plump and sweet.
Catch me before I have a chance to breed,
Soon there won't be any more of me,
One less jewel in the sunlit crown of the land,
the sky and sea.*

Nassau grouper, *Epinephelus striatus*, are especially vulnerable to over-fishing during spawning. In the winter months, there is a closed season during which it is illegal to capture, buy or sell Nassau grouper. The size limit is three pounds or about 17 inches. Compressor or hookah fishing can cause populations to decline rapidly. Recovery of populations once they collapse can take many decades, if they recover at all. In Florida, Nassau grouper are rare despite protection for more than twenty years.

Queen Conch

*My name is Dawn, I am a conch,
Such a tasty treat.
If I don't have a lip and you take my meat,
Soon there won't be any more of me,
One less jewel in the sunlit crown of the land,
the sky and sea.*

Queen Conch, *Strombus gigas*, are vulnerable to over-fishing because they mature slowly and are often harvested before they can reproduce. Legal harvest requires the shell to have a well-formed flared lip, which is not easily broken by hand. Harvesting juveniles (Figure 3) and fishing with compressor or hookah cause conch populations to decline rapidly. Once the population col-

lapses, they may not return. In Bermuda, conchs are rare despite 27 years of protection.

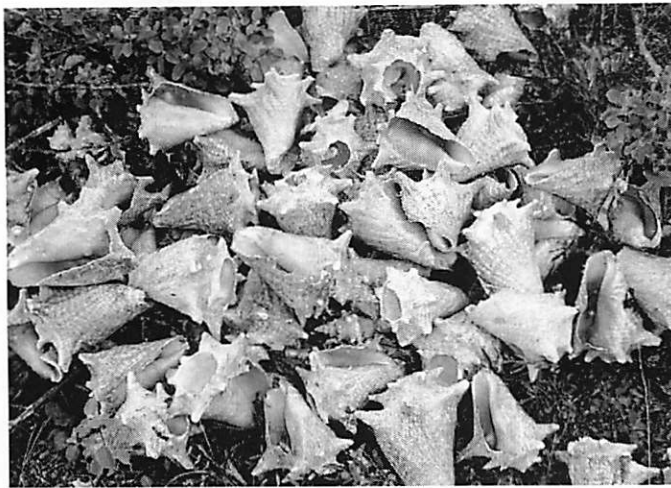


Figure 3. Illegally harvested juvenile conchs near Graham's Harbour. Photo by S. Voegeli.

Woodpecker

*My name is Hector, I'm a woodpecker,
I have a sharp beak
If you cut down all of my trees,
Soon there won't be any more of me,
One less jewel in the sunlit crown of the land,
the sky and sea.*

The San Salvador Woodpecker, *Melanerpes superciliaris*, is one of the rarest birds in the world. Possibly only a few pair remain. Without protection this unique bird may disappear altogether.

Sea Turtles

*My name is Myrtle, I'm a sea turtle,
Swimming over the reef,
If I can't lay my eggs on a quiet beach,
Soon there won't be any more of me,
One less jewel in the sunlit crown of the land,
the sky and sea.*

Sea turtles are endangered throughout their range. However, law provides for Bahamians to harvest Green and Loggerhead turtles (open season August 1 to March 31). At no time can anyone on any beach capture a sea turtle, disturb a

nest or collect eggs. The Hawksbill turtle (Figure 4), *Eretmochelys imbricata*, is completely protected and can never be harvested. Several San Salvador beaches are documented Hawksbill turtle nesting sites.

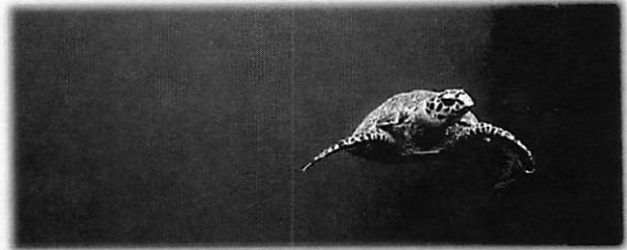


Figure 4. Hawksbill Turtle in Fernandez Bay. Photo by S. Voegeli.

Spiny Lobster

*My name is Trish, I'm a crawfish,
I'm a delicacy,
If my legs have berries, then let me be,
Soon there won't be any more of me,
One less jewel in the sunlit crown of the land,
the sky and sea.*

Spiny lobster, *Panulirus argus*, is locally known as crawfish. Legal harvest requires a tail length of five and one-half inches and always excludes egg-bearing females (berried). April 1 to July 31 is their closed season.

Coral Reefs

*My name is Darryl, I am a coral,
Pretty as can be,
Pollute my waters, kick me with your feet,
Soon there won't be any more of me,
One less jewel in the sunlit crown of the land,
the sky and sea.*

Encompassing San Salvador are easily accessible patch and wall reefs. Numerous patch reefs are found near shore in translucent waters. The wall reefs begin at a depth of approximately 45 feet and drop nearly vertically in excess of 3,000 feet. This fragile ecosystem is home to thousands of animals and plants. Tourism is the

island's main economy and scuba divers come from around the world to experience San Salvador's spectacular coral reefs and wall diving. Each day, small infractions caused by visitors quickly add up. Please do not wear gloves or touch marine organisms and always be aware of your fins and equipment. A friendly grouper is profitable for tourism as a nice dive attraction (Figure 5).



Figure 5. Susan Morales with Nassau Grouper. Photo by S. Voegeli.

Seabirds

*My name is Amber, I am a sea bird,
Soaring wild and free,
My eggs won't hatch if you make me flee,
Soon there won't be any more of me,
One less jewel in the sunlit crown of the land,
the sky and sea.*



Figure 6. Boobie Birds on Catto Cay. Photo by S. Voegeli.

Seabirds inhabit rocky bluffs offshore cays and interior lakes. San Salvador is home to more than 2,000 pairs of fourteen species. These birds typically lay one egg per year. Within ten minutes, direct sunlight can be fatal to eggs and chicks when nesting birds are disturbed. Seabirds nest year round on Catto (Figure 6) and White Cays. Collecting seabird eggs, eggging, is illegal.

Management Matters

Stop! Stop!

Who's that?

My name is Maria and I'm a hutia!

A what?

A hutia! I'm a small brown furry rodent. We use to be found all over the islands.

What happened?

Man came. He hunted me with his animals. He cleared the land and destroyed my habitat. Now I am only found on two small islands where no one ever goes.

That's sad. *Yes it is.*

We do not want the fate of the hutia for any "living jewels". The 2002 BREEF report states, "Without proper protection, grouper and conch populations could vanish in The Bahamas in the near future." They are commercially extinct elsewhere. Other living jewels are at risk. Some are endangered or critically endangered. The many living jewels require a variety of habitats: tidal creeks, mangrove forests, seagrass beds, coral reefs, open ocean, rocky bluffs, offshore cays and inland lakes. Most animals require several habitats to complete their life cycles. Management of these critical habitats can ensure their survival for future generations. Your choices will make a difference.

*We are The Bahamas, land of our mama's,
Islands of families,
From around the world people come to see,
Our wildlife and its diversity,
Protect the living jewels in the sunlit crown,
of our land, our sky and sea.
Protect the living jewels in the sunlit crown,
of our land, our sky and sea.*

THREE CRITERIA NEEDED TO ESTABLISH A NATIONAL PARK

Unique Natural Resources

San Salvador is probably one of the most studied Bahamian islands due to the presence of the Gerace Research Centre (GRC) formerly the Bahamian Field Station. San Salvador's unique marine and terrestrial resources have been well documented over many years by numerous visiting researchers. Tourism and fishing are two major industries in The Bahamas which are dependent on the same marine resource. In addition, the cultural importance of grouper, conch, and lobster is very significant. Seabirds and iguanas are terrestrial treasures receiving pressure from visitors. Again, sustainable management is imperative.



Figure 7. Divers collecting CARICOMP coral data at Vickie's Reef. Photo by Clare Cottreau.

Coral data collected on San Salvador as part of the Caribbean Coastal Marine Productivity

Program (CARICOMP) indicates a decline in hard coral coverage. This coral data has been collected since 1994 through the GRC at Vickie's Reef located in Fernandez Bay (Figure 7). San Salvador's hard coral coverage declined from 10% in 1994 to 5.6% in 1997 and remains low at 4.8% in November 2005. The apparent seasonal variation of algal cover- lower in winter, higher in summer- continues to be detected. San Salvador's CARICOMP coral site is located in an area which is currently proposed to be designated as a national park.

San Salvador is located on an isolated platform surrounded by deep Atlantic Ocean. San Salvador's narrow shallow banks provide spectacular wall diving while at the same time being particularly vulnerable to over-fishing. Locals have expressed a decline in the availability and abundance of adult groupers and conch. San Salvador is also less accessible to larvae from other sources due to its isolation. Therefore, if grouper and conch populations collapse, populations would probably recover very slowly, if at all. Pigeon Creek is San Salvador's only tidal creek. Mangrove creeks provide protection from storms and wave action, act as nursery areas for young grouper, conch and other marine organisms. Pigeon Creek also hosts a population of young sea turtles.

There is a sense of urgency to establish a national park due to documented declines, possible development, increased tourism and other stresses on these natural resources. We can choose to manage human interactions that can cause natural resource declines. Sustainable management should be introduced while populations are still relatively healthy.

Sustainable Funding

Funding is an important component to consider before establishing a national park. How will funding be generated to support and maintain this new national park? The SSLJ developed and implemented a pilot dive tag program endorsed by the BNT which proves to be a viable funding mechanism. The San Salvador dive tag (Figure 8) is sold voluntarily to visitors for \$10 each. The im-

age is changed yearly. The 2007 dive tag displays a hawksbill turtle silhouette on one side and the BNT logo on the other. More than \$20,000 has been raised from dive tag and t-shirt sales. All the money collected goes to support SSLJ efforts to establish a national park. After the national park is established the dive tag/user fee will be mandatory for all users. Conservative estimates indicate this pilot dive tag program can completely support the park warden's salary.



Figure 8. SSLJ first dive tag shown on BC. Photo by S. Voegeli

Community Support

Community support is probably the most important criteria needed to establish a national park. Do San Salvadorians want a national park? We believe the answer is yes. Community outreach has been and continues to be a key focus of the SSLJ. Numerous education activities with the local schools and community have been carried out. Educational topics have included aluminum can recycling, invasive species, beach clean ups, coastal awareness, mangroves, marine conservation, stewardship and many more. The SSLJ, partnered with The BNT, TNC, Bahamian Reef Environment Educational Foundation (BREEF), GRC and many visiting researchers, have volunteered their time and talent to present educational programs on San Salvador. Audiences targeted have been the preschool, primary school (Figure 9), high school, government officials, adults and clergy. Some of the outreach highlights are next.



Figure 9. San Salvador Primary School kids examining live helmet shell. Photo by S. Voegeli

Trash Cleanup. On April 29, 2006 the local Government Council, SSLJ, Elmira College, and the community participated in trash cleanup from the airport to the almond tree and launched an aluminum recycling program “Cans for Kids” (Figure 10). The students learned that aluminum cans may take 200-500 years to biodegrade. Collected aluminum is sent to Nassau on the mail boat and picked up and bailed by “Cans for Kids”. The aluminum bails are sent to the United States for reclaiming.



Figure 10. Aluminum can recycling and trash cleanup. Photo by S. Voegeli.

Town Meetings. On October 5, 2006 at the Harlem Square Club a town meeting had an attendance greater than 100 people. The commu-

nity agreed that Pigeon Creek should be a proposed national park area. Three airline tickets were raffled. Raffle tickets were earned by attending. Bringing a friend earned an extra chance.

School Presentations. On November 1-3, 2006 presentations were given by BREEF, BNT, and SSLJ to grades 1-12 on the importance of natural resources and national parks. Interactive conservation games were played and students were asked their opinions. Each student was given a SSLJ t-shirt and asked to write a letter to request establishing a national park on San Salvador. More than 100 letters were written by local youth. Enjoy two of these fantastic letters (Figures 11 and 12).

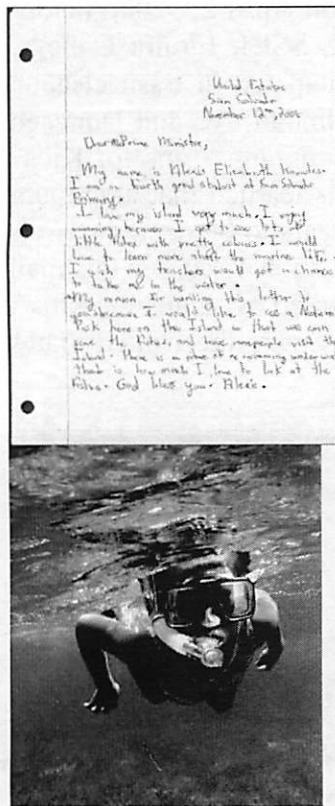


Figure 11. Letter written by A. Knowles with photo taken by Li Newton.

Dear Mr. Prime Minister,

My name is Alexis Elizabeth Knowles. I am a fourth grade student at San Salvador Primary. I love my island very much. I enjoy swimming, because I get to see lots of little fishes with pretty colours. I would love to learn more about

the marine life. I wish my teachers would get a chance to take me in the water.

My reason for writing this letter to you is because I would like to see a National Park here on the Island so that we can save the fishes and have more people visit the Island. Here is a picture of me swimming underwater. That is how much I love to look at the fishes.

God bless you,
Alexis

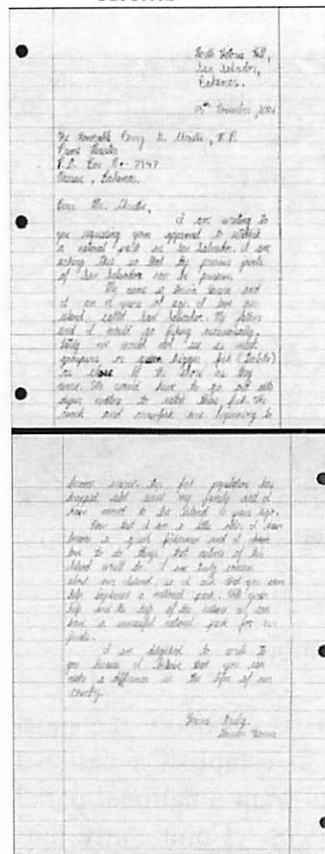


Figure 12. Letter written by G. Hanna.

Dear Mr. Christie,

I am writing to you requesting your approval to establish a national park on San Salvador. I am asking this so that the precious jewels of San Salvador can be preserved.

My name is Garvin Hanna and I am 13 years of age. I love our island called San Salvador. My father and I would go fishing occasionally. Lately we would not see as much groupers or queen trigger fish (turbit) as close to the shore as they were. We would have to go out into deeper waters to catch these fish. The conch and crawfish are beginning to become scarce. Our fish

population has dropped a lot since my family and I have moved to the island 10 years ago.

Now that I am a little older, I have become a great fisherman and I love to do things that natives of this island would do. I am truly concern about our Island, so I ask that you help implement a national park. With your help and the help of the natives we can have a successful national park for our jewels.

I am delighted to write to you because I believe that you can make a difference in the lives of our country.

*Yours truly,
Garvin Hanna*

Local Churches. Religion is a major component of San Salvador island life. Local churches have been requested to emphasize stewardship and our roles as good stewards. *“We are all part of God’s creation. The whole of Creation is everyone’s heritage, all equally created by God. We must learn again to live in harmony, not only with God and with one another, but with Creation itself.”* Archbishop Renato Martino at the 1992 UN Agenda.

SAN SALVADOR NATIONAL PARK PROPOSAL

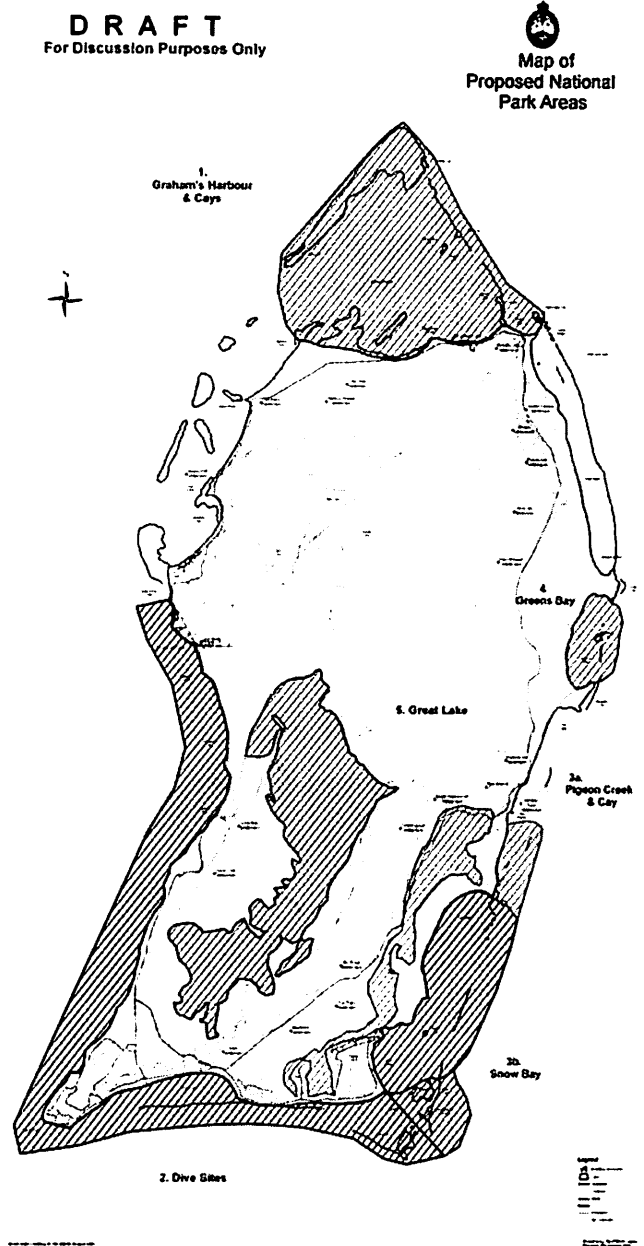


Figure 13. Draft of San Salvador proposed national park areas (Courtesy of the BNT).

The BNT states, “National parks are one of the greatest legacies to be left to future generations. Their tremendous value to The Bahamas spans economic, ecological and social realms.” The San Salvador National Park Proposal was submitted to the Office of the Prime Minister by The Bahamas National Trust February 2007 and is available on the BNT website under “latest news.” This proposal was re-submitted in July 2007 to

the newly elected Office of the Prime Minister. Upon approval, this document will create and establish a new national park on San Salvador.

After approval, a national park management plan will be developed with input from all stakeholders. The proposed national park areas for San Salvador are shown on Figure 13. Management could range from enforcement of existing fishing regulations to no-take zones. Management zones can be utilized to implement different levels of management for different areas. For example, an area could be designated as national park with no additional management. The park warden can enforce existing fishing regulations within national park areas. The Bahamas has excellent fishing regulations. However, San Salvador does not have a Fisheries Officer. Enforcement of the existing fisheries regulations is critical component.

WHAT YOU CAN DO

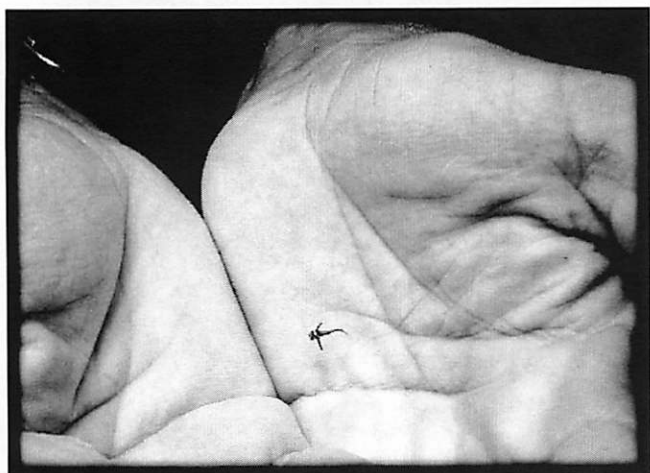


Figure 14. The future is in our hands. Jean Paul Morales provides temporary shelter for a tiny juvenile spotted drum in Fernandez Bay (depth ~45 feet). Photo by S. Voegeli

The future is in our hands (Figure 14) and each of us can make a positive difference. What can you do? Share knowledge and appreciation with others. Know and obey fishing regulations. Make wise seafood choices (seafoodwatch.org) or consider eating beef, chicken, pork and vegetables. Change will happen, if the consumer acts. Support efforts to establish a national park on San

Salvador through The Bahamas National Trust. Purchase a dive tag or t-shirt; profits are used to establish a national park on San Salvador. Your help can make this a reality.

ACKNOWLEDGMENTS

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REFERENCES

The Bahamas National Trust website at (www.thebahamasnationaltrust.org).

Bahamian Reef Environment Educational Foundation website (www.breef.com).

MacAlister Elliott and Partners Ltd., 2002. Nassau Grouper and Queen Conch in the Bahamas Status and Management Options. Unpublished report for The Bahamas Reef Environment Educational Foundation.

Shaklee, Ron, 2006. *The Living Jewels of the Land, the Sky and Sea*. Song

The Nature Conservancy website at (www.tnc.org).